

Figure 1

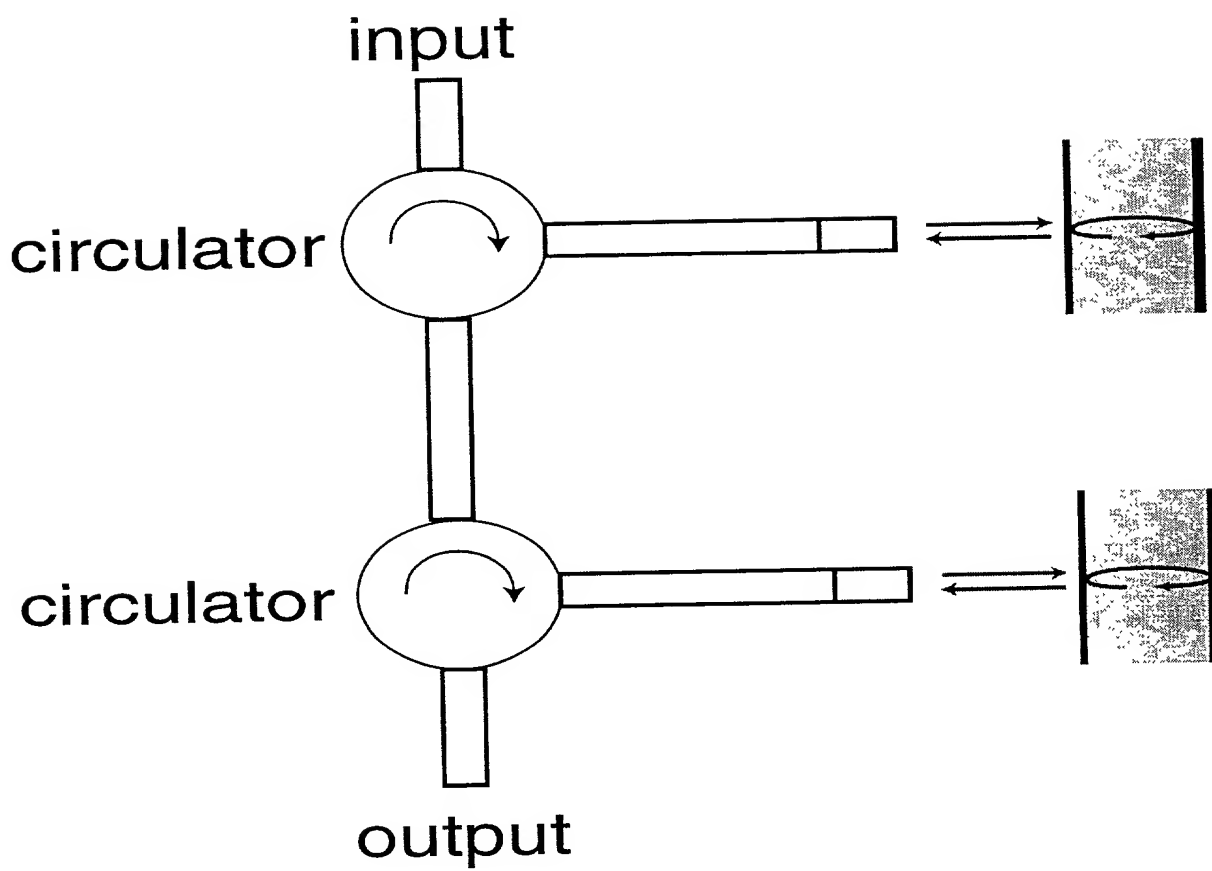


Figure 2

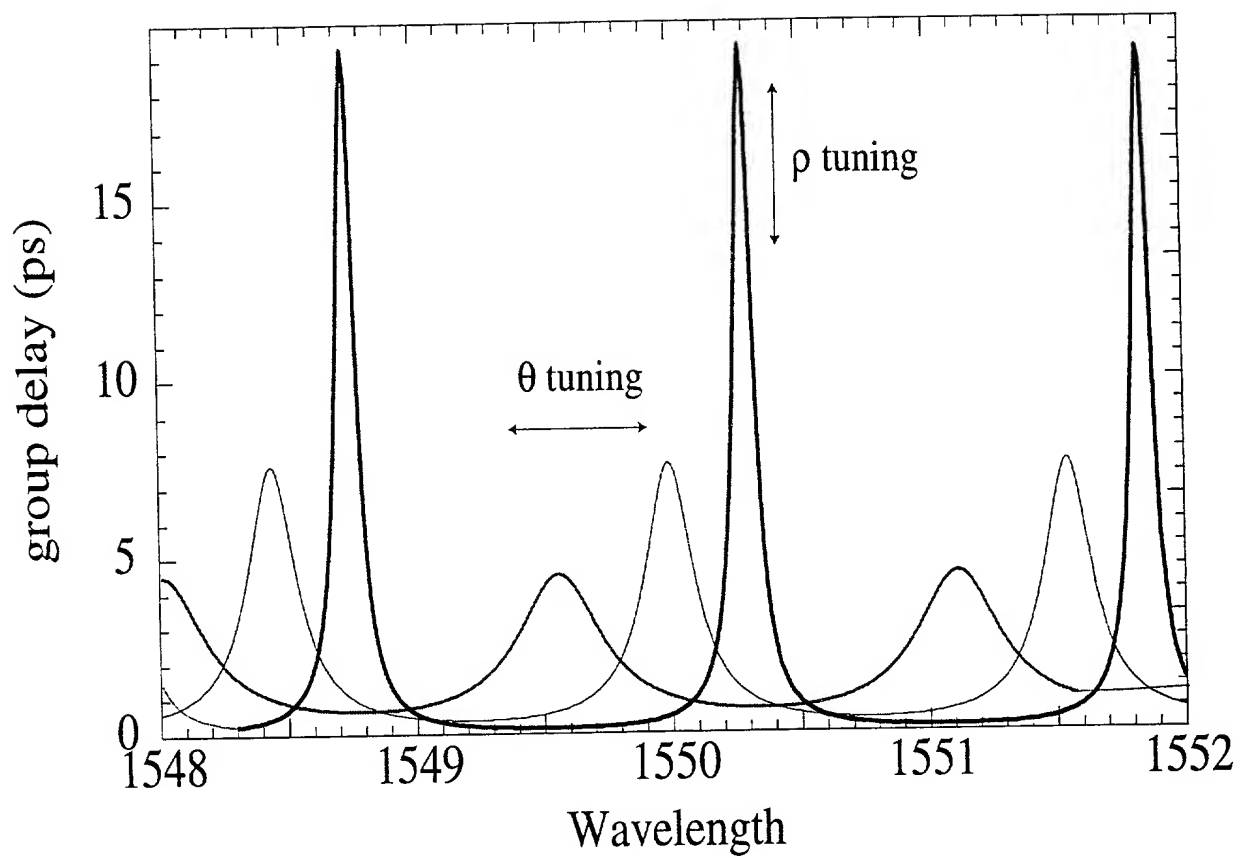


Figure 3

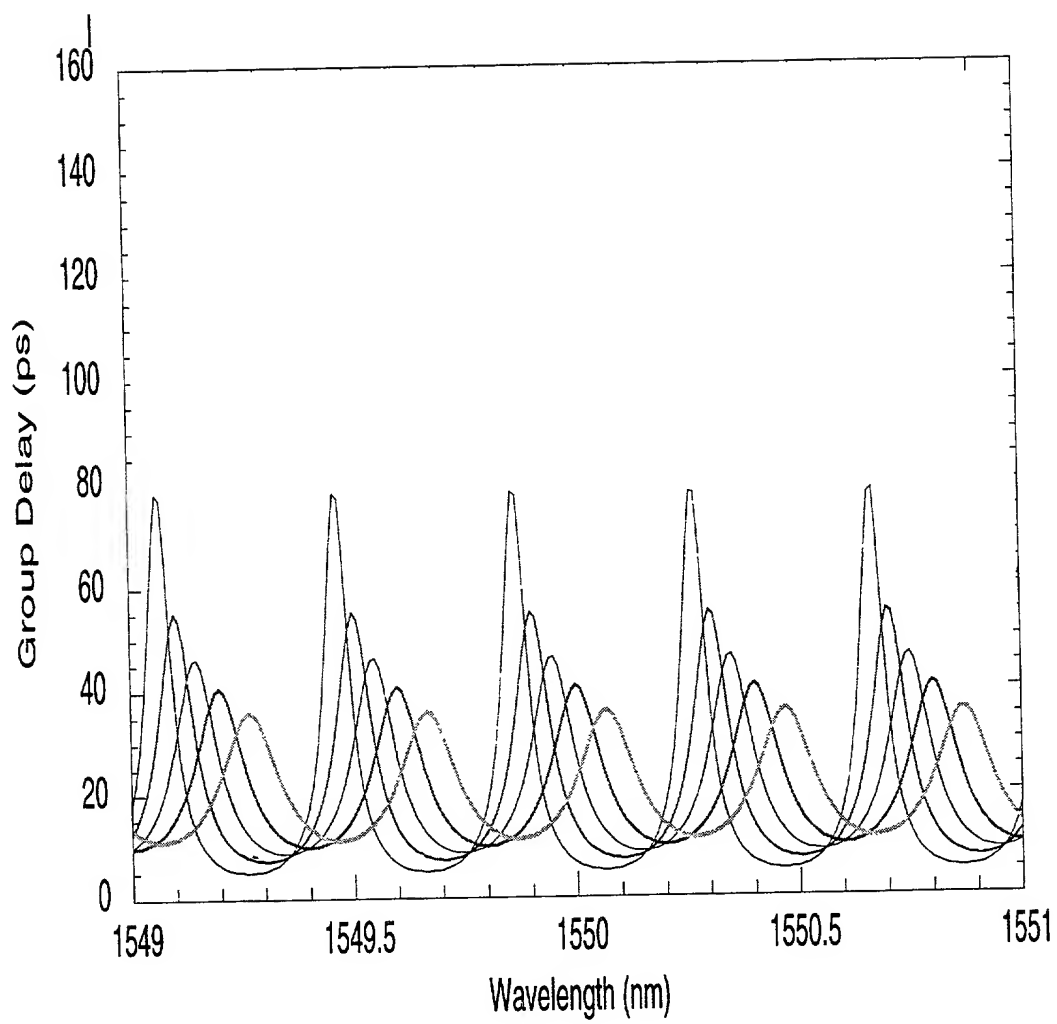


Figure 4

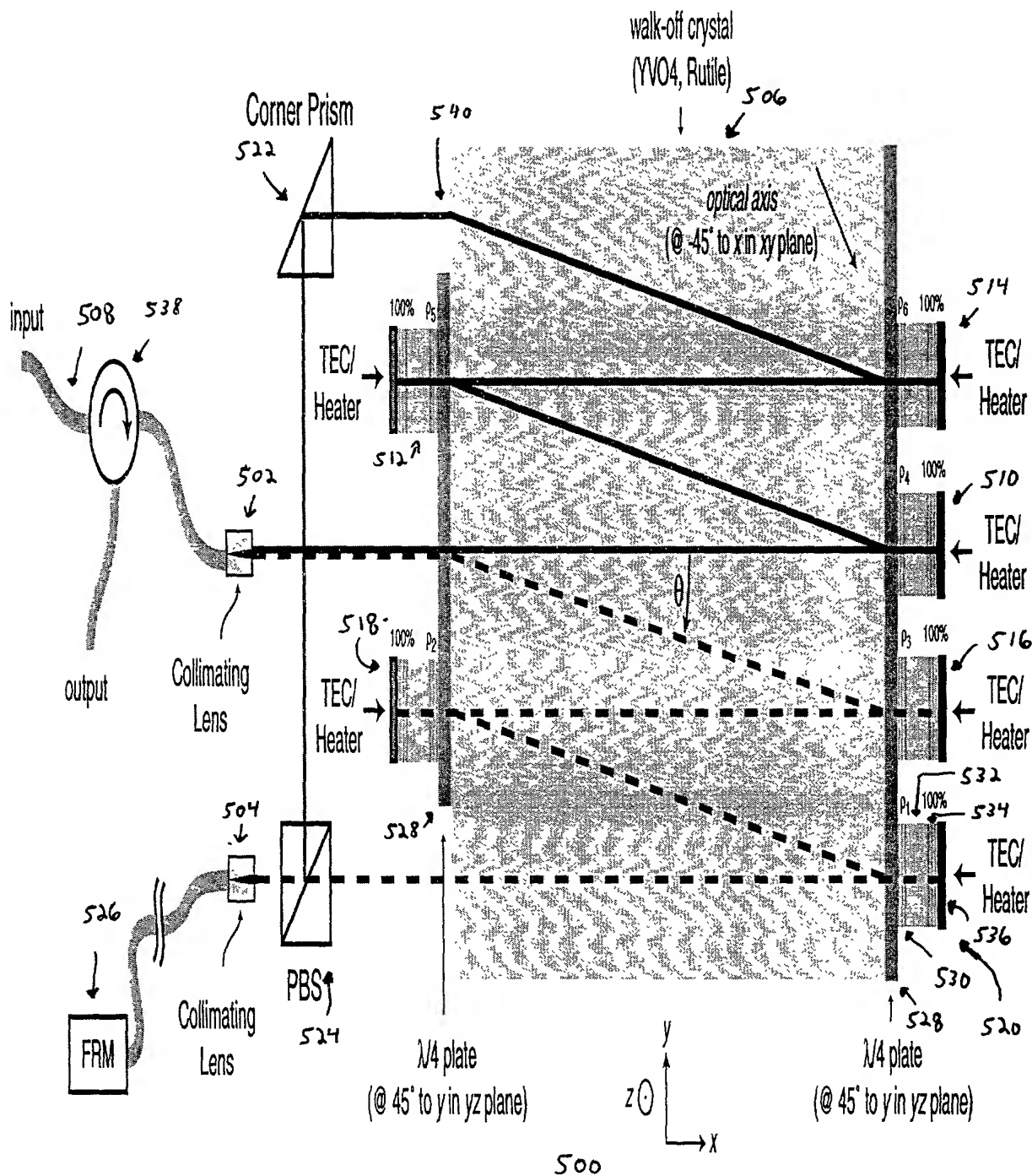


Figure 5

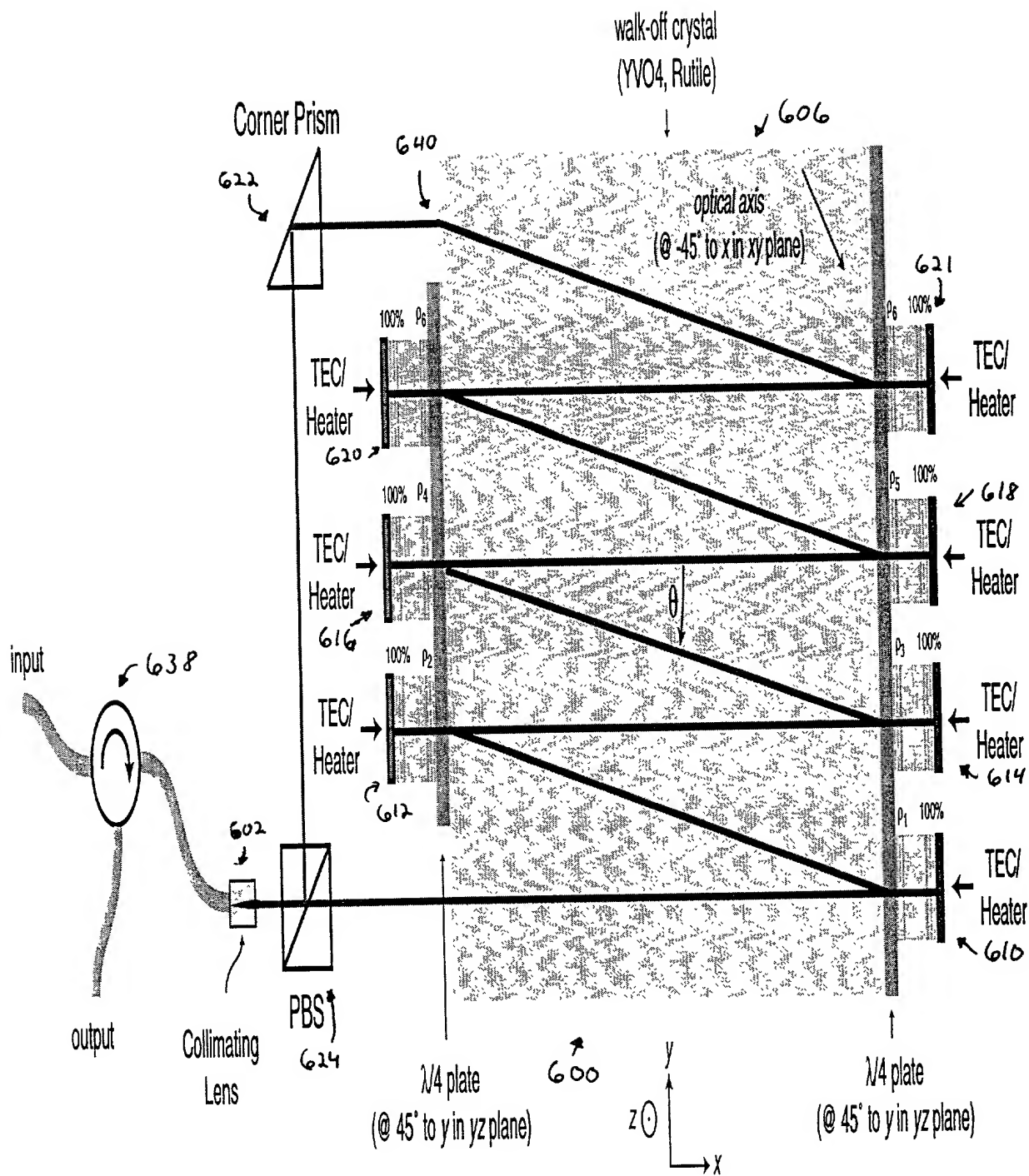
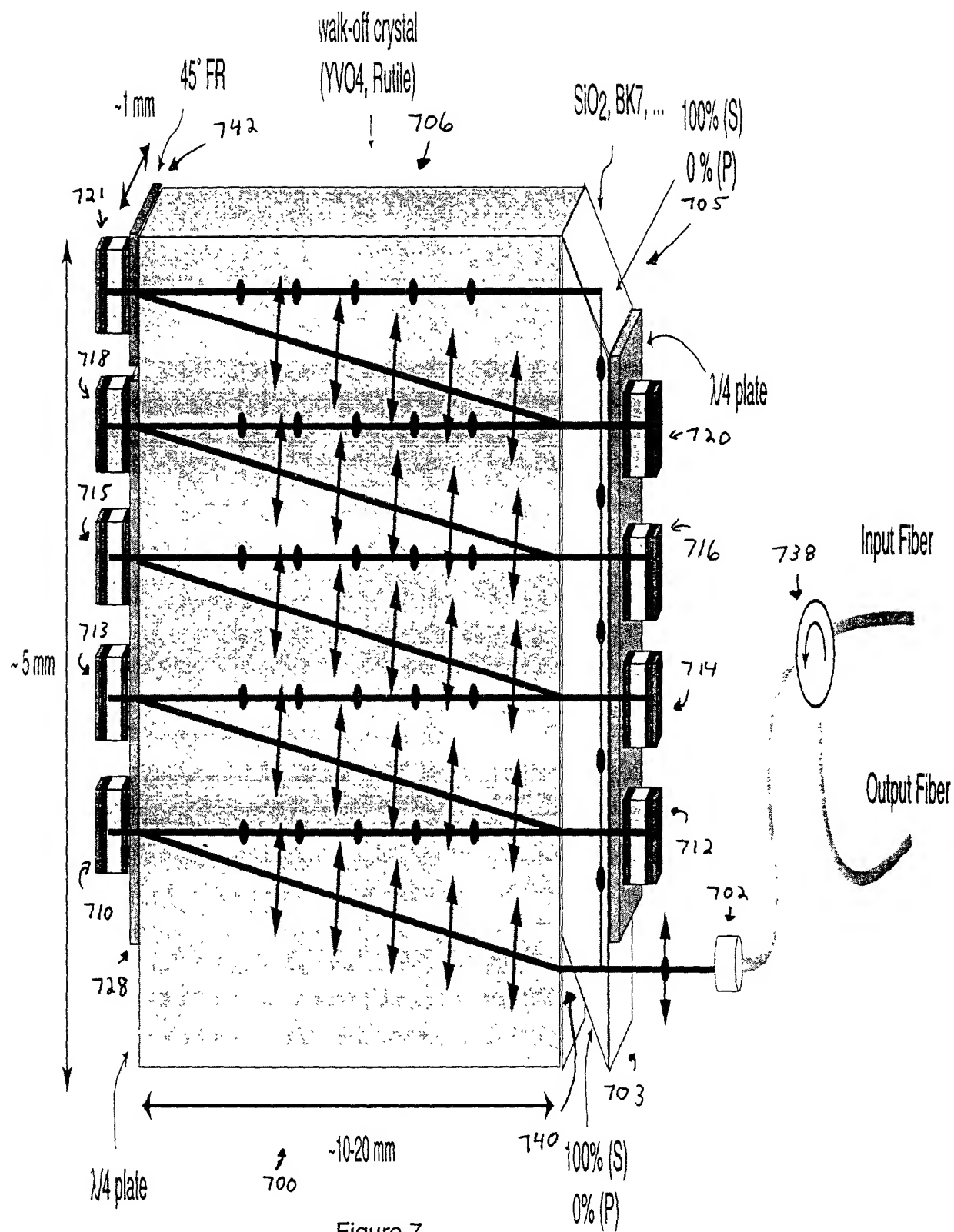
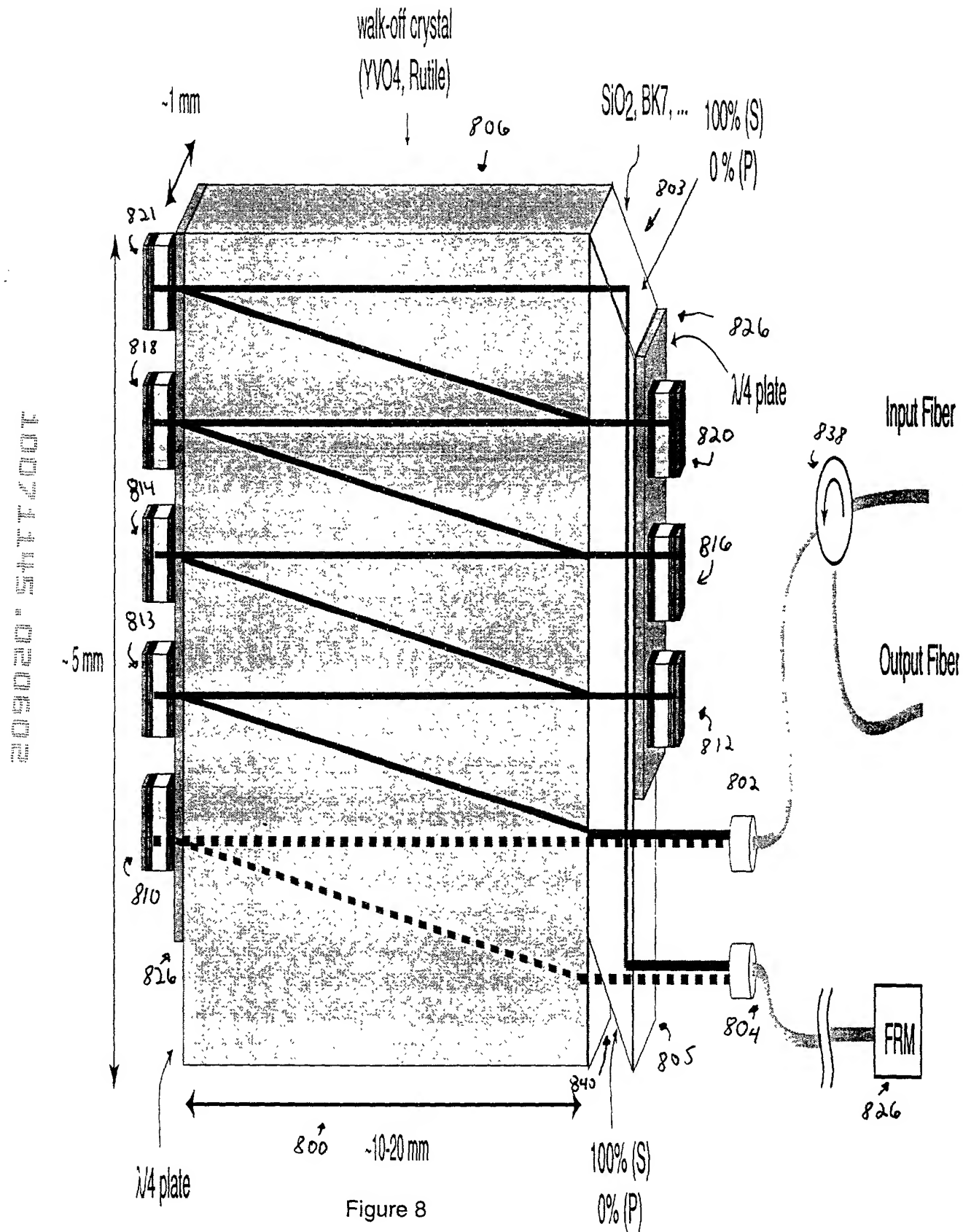


Figure 6

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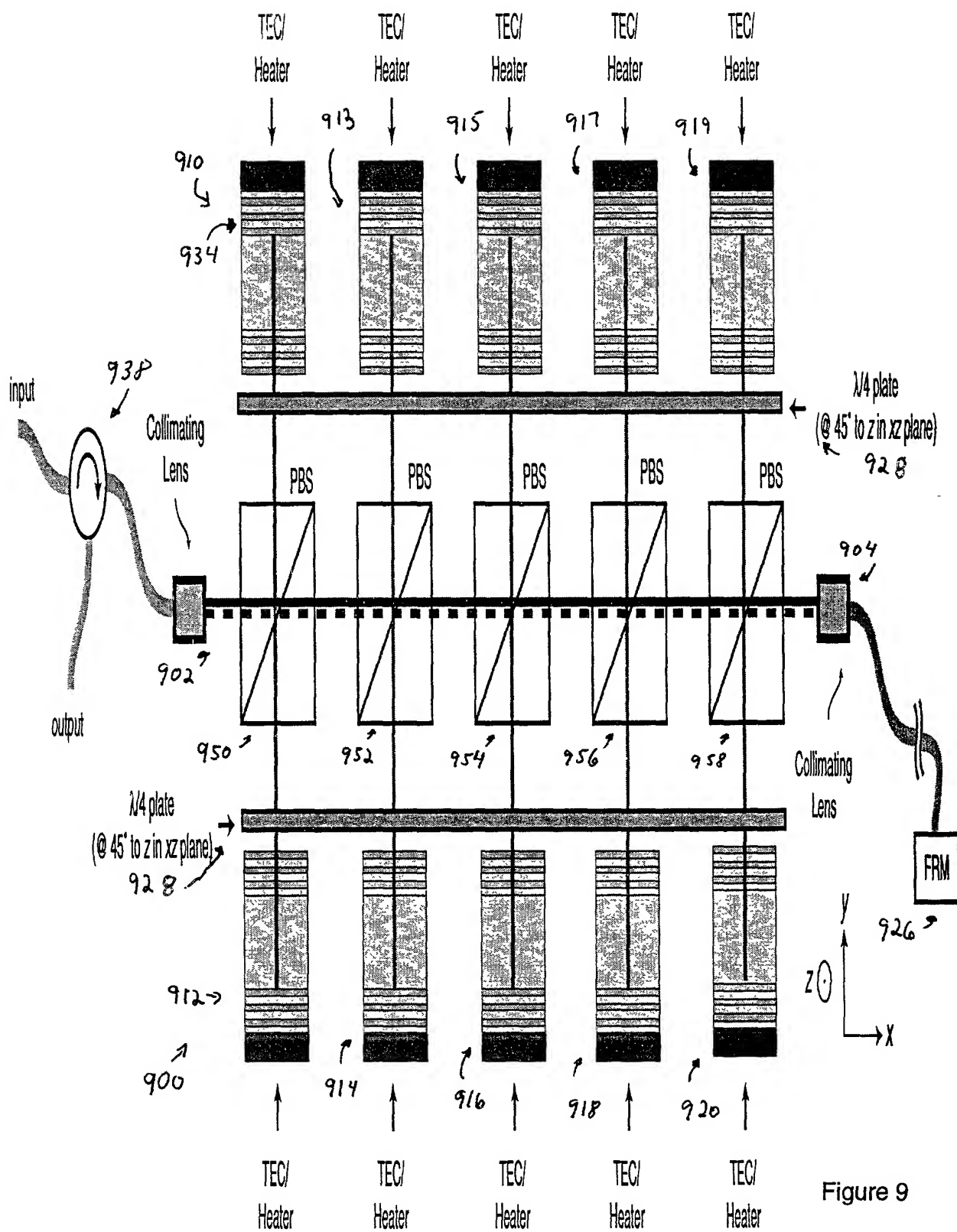


Figure 9

Figure 10 is a schematic diagram of a 5x5 optical switch array. The array is composed of five rows and five columns of optical components. Each column is controlled by a "TEC/ Heater" at the top and bottom. The input light enters from the left, passes through a "Collimating Lens", and is directed into the array. The output light exits from the right. The array includes "PBS" (Polarizing Beam Splitters) and " $\lambda/4$ plate" (Quarter-Wave Plates) at 45 degrees to the z-axis in the xz plane. A "reflector" is located at the right end of the array. The diagram is labeled with various reference numerals: 1036, 1026, 1027, 1029, and 1028. A coordinate system (x, y, z) is shown at the bottom right.

Figure 10

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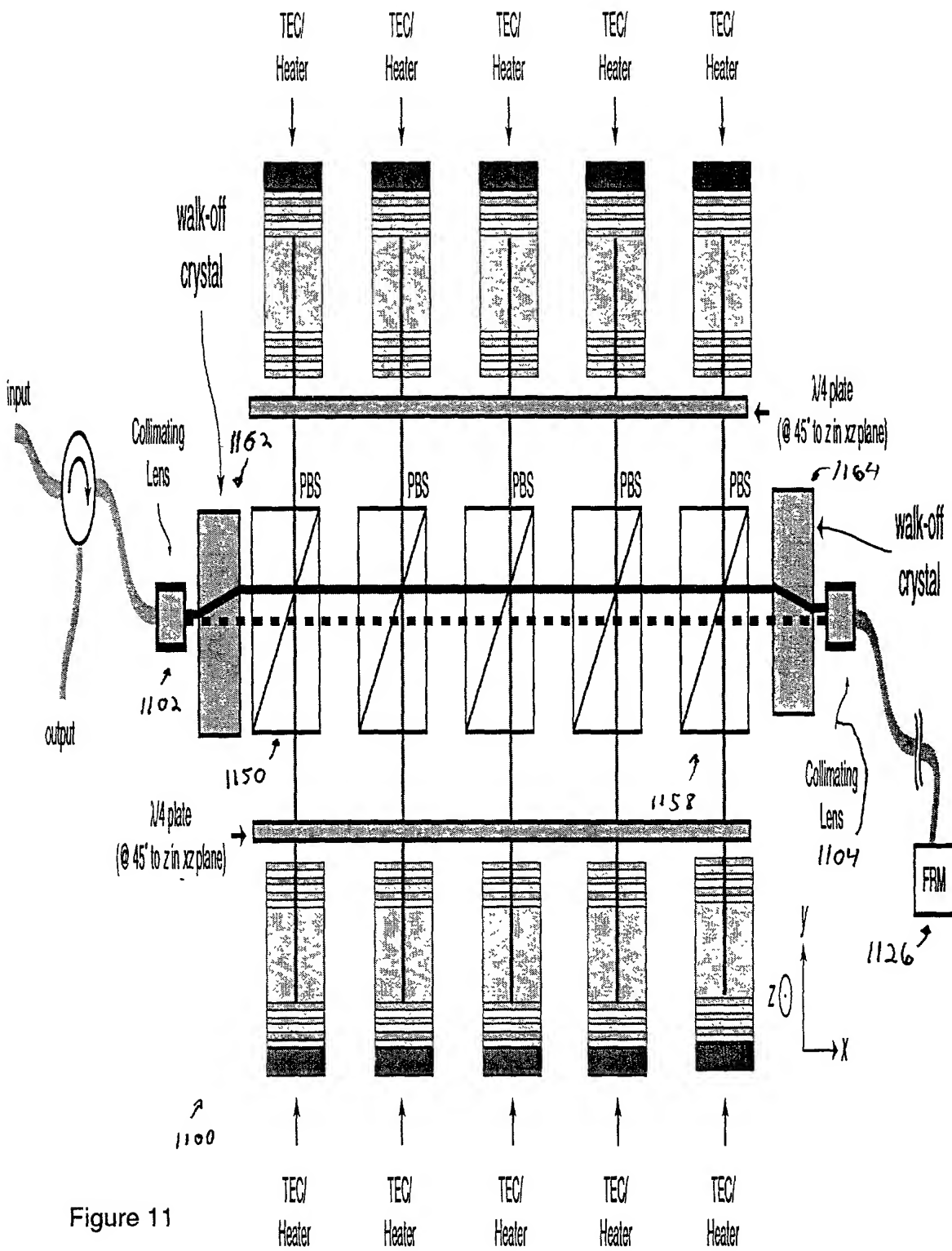


Figure 11

The diagram illustrates a quantum optics setup for a quantum memory experiment. An input fiber (1238) enters a circulator (1202) and passes through a collimating lens (1262) into a walk-off crystal (1210). The light then passes through a quarter-wave plate ($\lambda/4$ plate) and enters a polarizing beam splitter (PBS, 1268). The PBS is surrounded by four quarter-wave plates (1212, 1214, 1228, 1230) and four walk-off crystals (1216, 1218, 1220, 1222). Each walk-off crystal is driven by a TEC/Heater. The light from the PBS is collected by a collimating lens (1264) and enters a fiber (1204) connected to a fiber-to-mode converter (FRM, 1226). A coordinate system (x, y, z) is shown at the bottom right.

Figure 12

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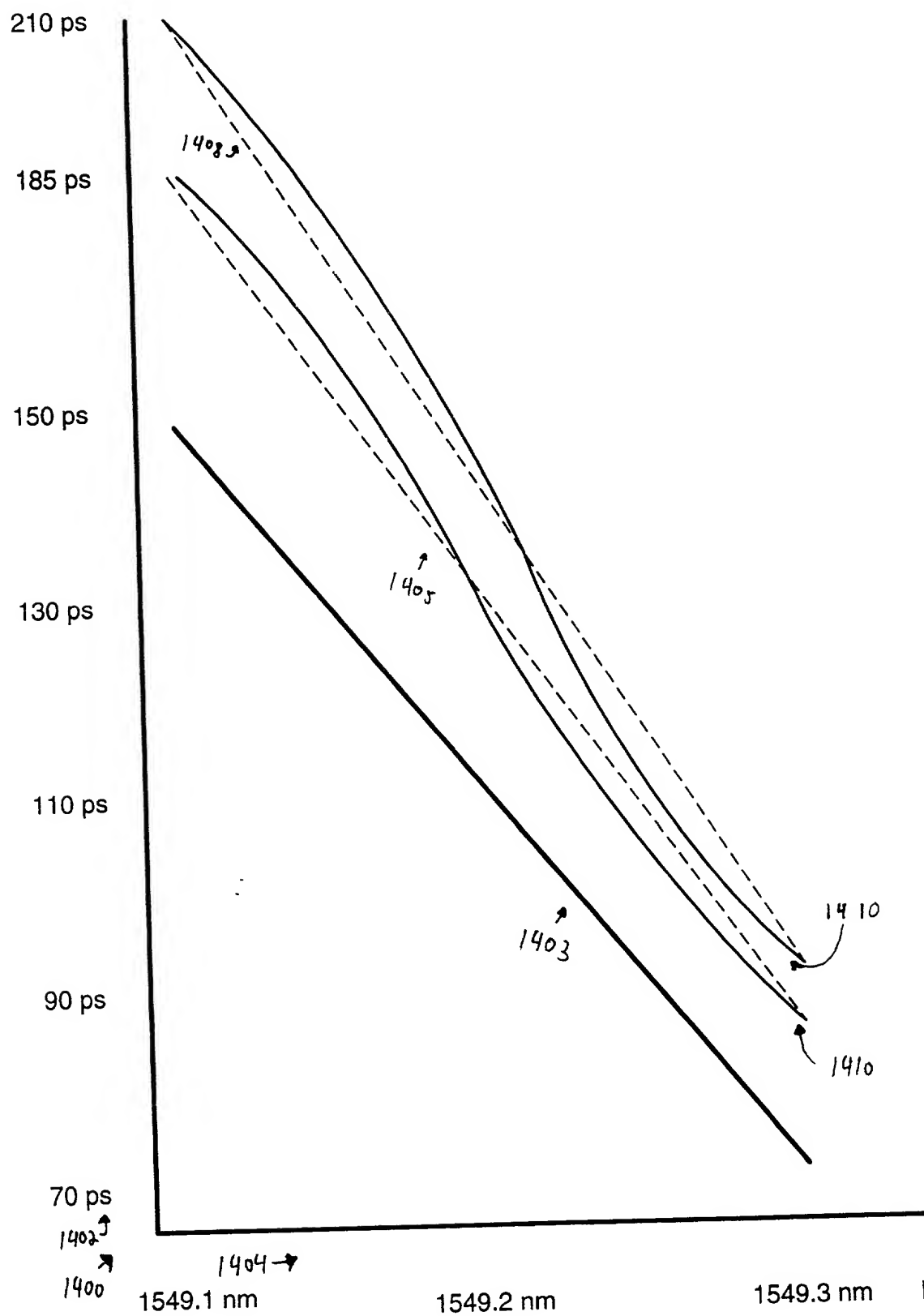


Figure 14

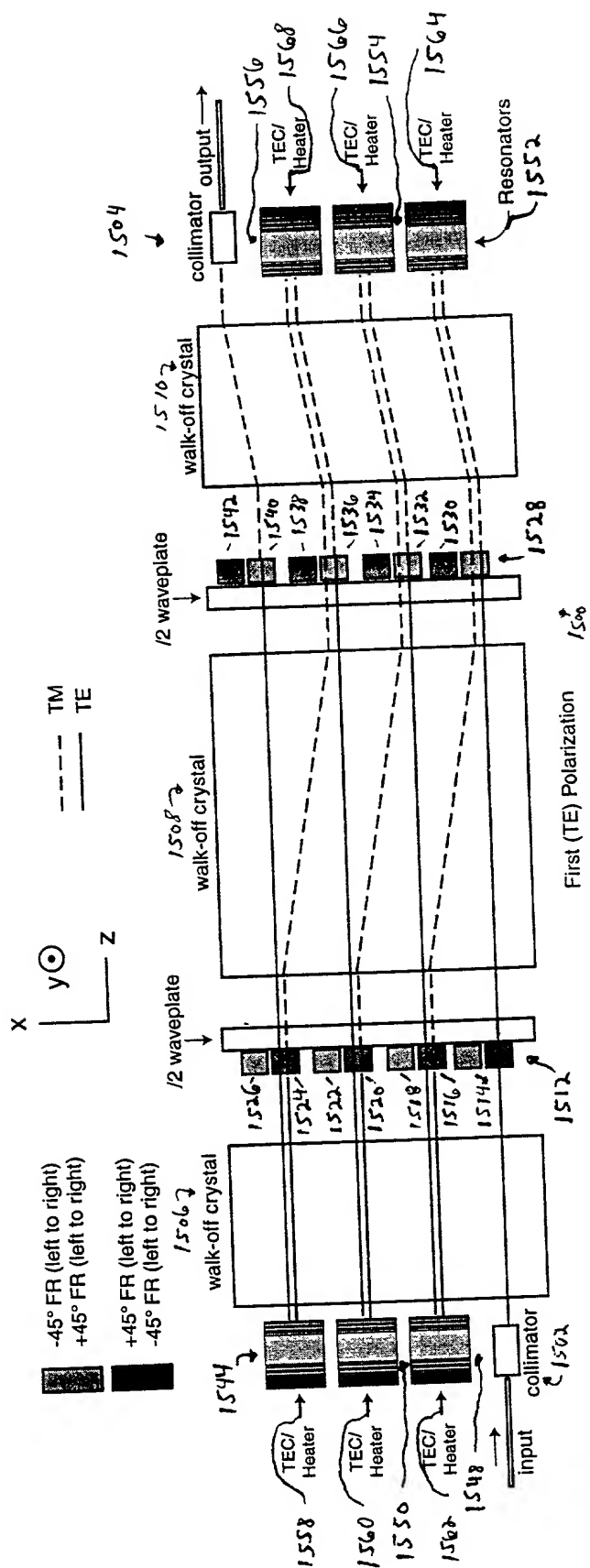


Figure 15

